Chapter 1
INTRODUCTION

BACKGROUND

The Lower East Coast (LEC) Planning Area is one of four regional planning areas in the South Florida Water Management District (District, SFWMD). The planning area covers approximately 1,200 square miles and includes essentially all of Miami-Dade, Broward, and Palm Beach counties, most of Monroe County, and the eastern portions of Hendry and Collier counties (**Figure 1**). The entire Lake Okeechobee Service, which includes part of four additional counties, Martin, Okeechobee, Glades and Lee, were incorporated into the analyses because of their reliance on the Lake Okeechobee for a portion of their water supply. Land use within the LEC region ranges from urban in the east to undeveloped natural landscapes in the west, with some areas in between having intense agricultural use. In the future, urban land use is expected to intensify and increase spatially and agricultural land use is expected to decline slightly. The ability to provide more water to the LEC planning area in the future also depends on activities in other areas of the District that depend on Lake Okeechobee for water supply, such as the Caloosahatchee and St. Lucie river basins.

The planning area faces many challenges to provide adequate water supply to meet growing urban demands, changing agricultural demands, and needs of the environment through 2020. To some extent, these trends may offset each other in some basins and service areas. Nevertheless, overall water demand is expected to increase by 20 percent for urban and agricultural users (**Table 2**). The costs of implementing the options necessary to meet the projected increases in demand are substantial, but these costs will be spread over a number of years and will be funded from various local, regional, state, and federal sources.

This plan builds on analyses described in previous documents, including the *LEC Working Document* (SFWMD, 1993), the *Interim Plan for Lower East Coast Regional Water Supply* (SFWMD, 1998b), and the *Central and Southern Florida Project Comprehensive Review Study Final Feasibility Report and Programmatic Environmental Impact Statement* (Restudy) (USACE and SFWMD, 1999), and ongoing efforts such as the Comprehensive Everglades Restoration Plan (CERP). The CERP is being developed by the District, the United States Army Corps of Engineers (USACE), and other agencies to refine and implement the recommendations from the Restudy. The time frame for this plan is from the present to the future (2020). The computer modeling analysis for this plan originally used population, agricultural production, and water use projections through the year 2010, based on data provided from local governments. In order to comply with statutory changes to Chapter 373, F.S., that were made in 1997, these projections were reviewed and updated to create new projections for 2020.

The District has established a planning goal to meet regional water needs, consistent with Florida statutes and ensure that sufficient water is available to avoid water

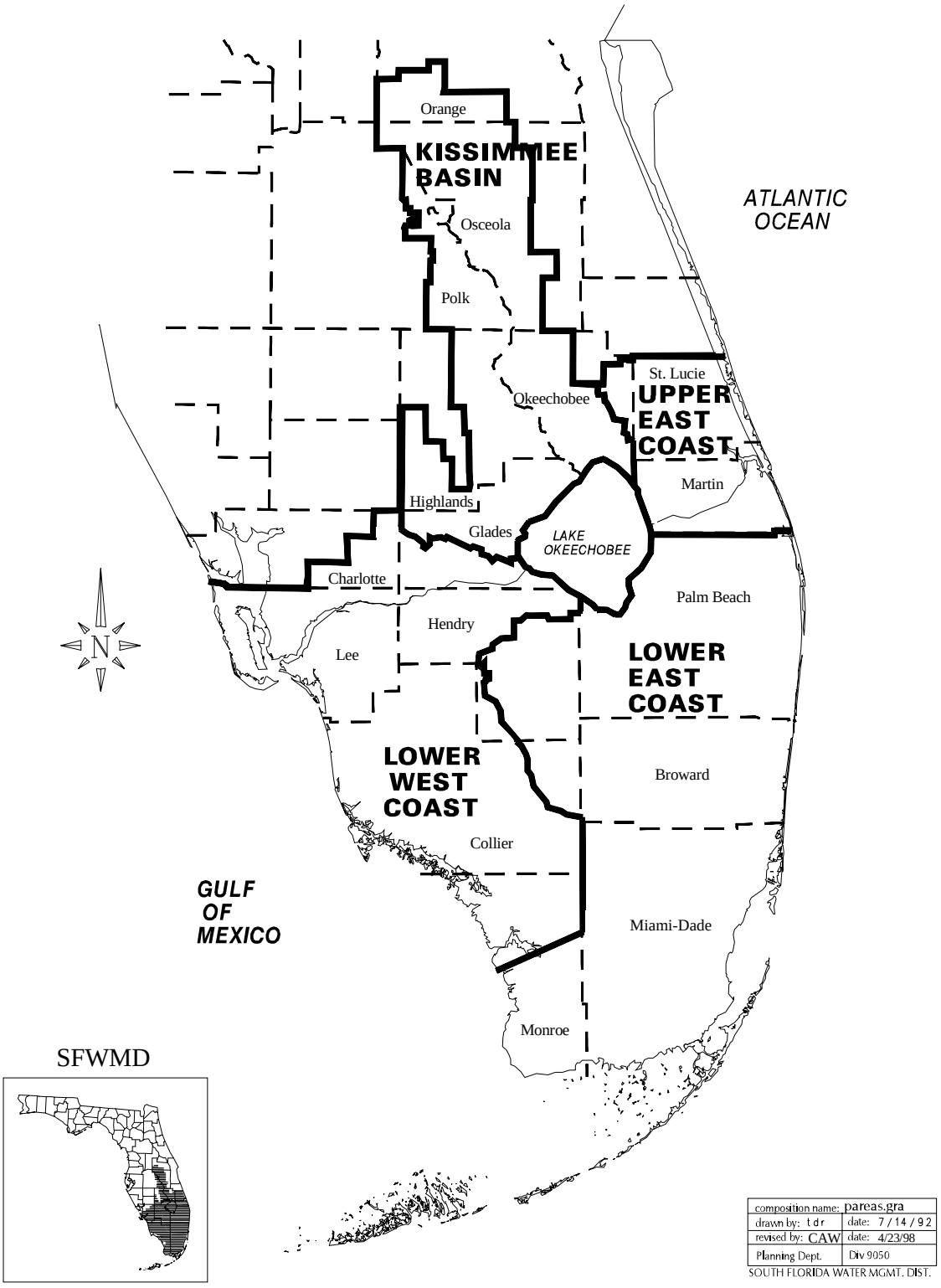

Figure 1. Water Supply Planning Areas within the SFWMD.

Table 2. Current and Projected Water Demands for each Water Use Category by County within the LEC Planning Area.

County	1995 Average Annual Demand (BGY)[a]				2020 Average Annual Demand (BGY)			
	PWS/DSS	Recreational	Commercial and Industrial	Agricultural	PWS/DSS	Recreational	Commercial and Industrial	Agricultural
Palm Beach	76.9	24.0	10.9	256.6	117.3	35.8	12.2	225.3
Broward	83.0	21.9	1.3	3.2	116.6	27.6	1.8	2.6
Miami-Dade	145.4	5.1	10.6	39.9	230.3	6.9	13.3	41.7
Monroe	0.2	0.8	0.03	0	0.2	0.8	0.03	0
Eastern Hendry	0.1	0	0	85.3	0.2	0	0	87.0
Total for the LEC Planning Area	305.6	51.8	22.9	385.0	464.5	71.1	27.3	356.4

a. BGY is Billions of Gallons per Year

shortages and meet demands during a 1-in-10 year drought condition. This plan achieves that goal. Even though enough water is available to meet demands on a regional scale, local conditions and circumstances may make it impossible or impractical to deliver regional water to particular individual supply systems. To address this issue, this plan presents regional water resource development projects, as well as a menu of strategies and local options that are available for more localized water supply development projects.

OVERVIEW

The *Lower East Coast Regional Water Supply Plan* (LEC Plan) was developed to include the areas in South Florida shown in **Figure 2**, covering all or part of ten of the 16 counties in the SFWMD. Documentation of the plan includes the final Planning Document (this document) and the Appendices. This chapter, Chapter 1, provides an introduction that emphasizes the purpose and general goals of the LEC Plan. **Chapter 2** gives an overview of the LEC water supply planning process. **Chapter 3** describes the LEC Planning Area boundaries and major features, the primary and secondary water management systems, and the various basins and service areas. **Chapter 3** also includes a description of the areas within the LEC where Minimum Flows and Levels (MFL) have been proposed, pursuant to provisions in Chapter 373, F.S. **Chapter 4** presents the findings of the LEC Plan in terms of the performance of the regional and subregional water supply systems under present and future conditions with various water management features in place. **Chapter 4** focuses on use of the regional and subregional models to evaluate current (1995) and future (2020) conditions without the major features proposed in the Restudy and future conditions with the major features proposed in the Restudy in place. **Chapter 4** also describes performance of the regional and subregional water supply systems with various combinations of water resource and supply options in place. **Chapter 5** provides the conclusions from the analysis and lays out implementation strategies for projects

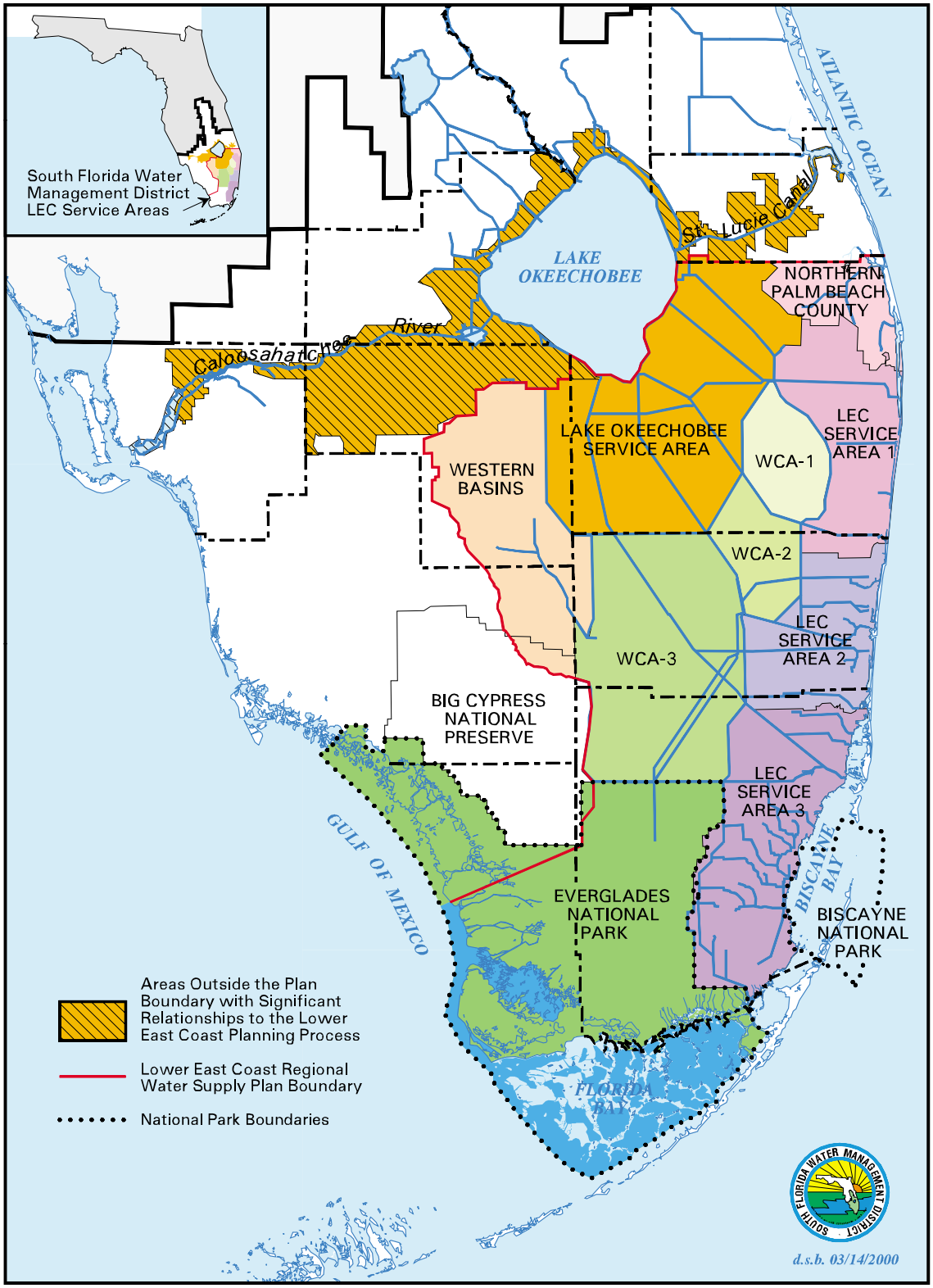

Figure 2. Major Features of the Lower East Coast Planning Area.

construction, recovery and prevention strategies to meet MFLs, reservations of water, and rule development. **Chapter 6** presents the plan's recommendations, based on all evaluations conducted as part of the LEC planning process.

Appendices to the LEC Plan document include the legal statutes pertaining to the water supply plans (**Appendix A**), water demand analyses and projections (**Appendix B**), descriptions of water resource projects development (**Appendix C**), performance measures and indicators (**Appendix D**), hydrologic modeling tools (**Appendices E** and **F**), engineering designs and cost estimates (**Appendix G**), results of the SFWMM and ground water model runs (**Appendix H**), related planning materials (**Appendix I**), and documentation for the establishment of MFLs (**Appendix J**).

LEGAL BASIS

The LEC Plan provides strategies that are cost-effective, can be implemented, and assure that adequate water is available to meet future urban and agricultural, and natural system demands within the planning area through the year 2020. In accordance with recent changes to Chapter 373, F.S., a combination of water resource and water supply development projects is proposed. The plan has been evaluated to determine how well the proposed facilities and operational changes meet reasonable-beneficial water demands during a 1-in-10 year drought condition, while protecting the natural system from harm.

Currently, the regional water supply system meets the urban and agricultural needs fairly well. However, large portions of the Everglades and important estuary systems do not receive adequate quantities, timing, or distribution of water. Meeting the water supply needs for restoration of the environment is explicitly recognized as a responsibility of equal importance to meeting urban and agriculture demands and is specifically addressed in the Restudy and the subsequent CERP. Although this LEC Plan is not intended to achieve full restoration, appropriate attention has been given to improving hydropatterns within natural systems, particularly within the Everglades ecosystem. Furthermore, the plan incorporates proposed MFLs for Lake Okeechobee, the Everglades, and the Biscayne aquifer and outlines recovery and prevention strategies, where appropriate, to ensure that minimum water levels, and the durations and frequency of wetland flooding are achieved and maintained.

All of the policies developed for the LEC Regional Water Supply Plan Advisory Committee are governed by the general regional water supply planning requirements and policies as stated in the Florida Water Resources Act, Chapter 373, F.S. The purpose and scope of this plan are based on a hierarchy that progresses from law to more specific policy direction, and expressed District goals and objectives.

Regional Water Supply Plan Legal Requirements and Implementing Policies

Chapter 373 Planning Framework

Florida law provides several layers of legal requirements and policy direction to water management districts that impact regional water supply plan development. The relationship among three primary levels of legal and policy direction that affect regional water supply planning is shown in **Figure 3**.

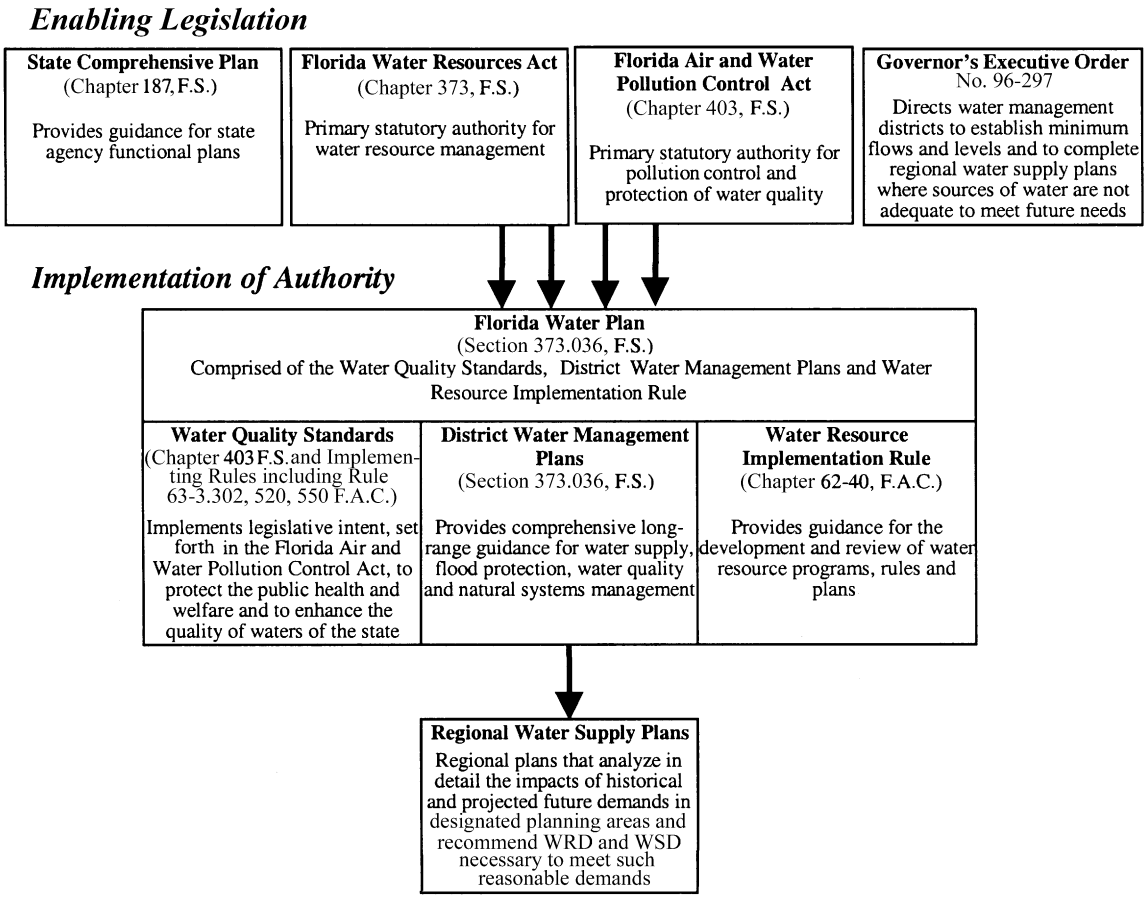

Figure 3. Legal Framework for the LEC Plan.

The Water Resource Implementation Rule (Chapter 62-40, F.A.C.), The Water Resources Act (Chapter 373, F.S.), the State Comprehensive Plan (Chapter 187, F.S.), the Florida Air and Water Pollution Control Act (Chapter 403, F.S.), and delegation of authority from Florida Department of Environmental Protection (FDEP) provide overall directives and policies that guide water management district water supply planning efforts. The Water Resource Implementation Rule stems from requirements in Chapter 373, F.S., (principally Sections 373.036 and 373.039). In addition, new legislative directives were monitored throughout the development of this plan, keeping it current and consistent with the 1996 Governor's Executive Order (96-297) and the 1997 legislative water supply

amendments to Chapter 373, F.S. The LEC Plan was developed by the SFWMD based on guidelines developed in the *Regional Water Supply Assessment* (SFWMD, 1998e) and to fulfill commitments made in the approved *District Water Management Plan* (SFWMD, 2000a).

Key Direction for Regional Water Supply Plan Development

Within the three levels (enabling legislation, implementation of authority, and plan development) there are three key provisions discussed below. They are 1) overall Chapter 373, F.S., "Florida Water Resources Act" requirements; 2) district water management plan policies, goals, and objectives; and 3) regional water supply plan policies, goals, and objectives. These policies and legal requirements must be taken as a whole when balancing the often competing missions of the District.

Overall Chapter 373 Policies

Section 373.016, F.S., contains policy direction for the water management districts to implement all of the programs authorized by the law, including the development of regional water supply plans. It declares that the waters in the state are among its basic resources and they have not been conserved or fully controlled so as to realize their full beneficial use. It directs the FDEP and the District to take into account cumulative impacts on water resources and manage those resources in a manner to ensure their sustainability. The section then lists detailed policies which must be applied as a whole:

- Provide for the management of water and related land resources
- Promote the conservation, replenishment, recapture, enhancement, development, and proper utilization of surface and ground water
- Develop and regulate dams, impoundments, reservoirs, and other works
- Provide water storage for beneficial purposes
- Promote the availability of sufficient water for all existing and future reasonable-beneficial uses and natural systems
- Prevent damage from floods, soil erosion, and excessive drainage
- Minimize degradation of water resources caused by the discharge of storm water
- Preserve natural resources, fish, and wildlife
- Promote the public policy set forth in Section 403.021, F.S.
- Promote recreational development, protect public lands, and assist in maintaining the navigability of rivers and harbors
- Otherwise promote the health, safety, and general welfare of the people of Florida

District Water Management Plans Policies, Goals and Objectives

General Direction

Pursuant to Section 373.036, F.S., each water management district must develop an overall planning document for all of the programs implemented under Chapter 373, F.S. The district water management plans provide another layer of policy direction for the development of regional water supply plans. District water management plans are to be formulated with consideration to the following:

- Attainment of maximum reasonable-beneficial use of water resources
- Maximum economic development of water resources consistent with other uses
- Management of water resources for such purposes as environmental protection, drainage, flood control, and water storage
- Quantity of water available for application to a reasonable-beneficial use
- Prevention of wasteful, uneconomical, impractical, or unreasonable uses of water resources
- Presently exercised domestic use and permit rights
- Preservation and enhancement of the water quality of the state
- State water resources policies expressed by Section 373.036, F.S.

The *District Water Management Plan* (DWMP) (SFWMD, 2000a) represents the District's overall strategy for future planning and implementation activities and provides a comprehensive examination of a myriad of issues related to water supply, flood protection, water quality, and natural systems management in South Florida. This plan also establishes schedules for future District planning activities, including the LEC Plan. The DWMP was published first in April 1995 (SFWMD, 1995c). Annual progress reports were published over the next four years (SFWMD, 1996a, 1997, 1998a, 1999). In 2000, the five-year update of the DWMP was published and incorporates major features of the LEC Plan.

Goals and Objectives

The DWMP sets forth the following and objectives for water supply, that apply to development of regional water supply plans. The goals and objectives are listed below.

Goals:

- Increase available water supply

- Promote the use of alternative water supply sources and conservation
- Protect the quality of source water from degradation and natural systems from significant harm, which could result from water use

Objectives:

- Increase available water supplies and maximize overall water use efficiency to meet identified existing and reasonable-beneficial future needs
- Prevent contamination of water supply sources.

These goals and objectives must work in concert with the Chapter 373, F.S., policies discussed above.

Districtwide Water Supply Assessment

Each District must also produce a districtwide water supply assessment which identifies areas where development of regional water supply plans is required. Section 373.036, F.S., requires the districtwide water supply assessment to include an analysis of the following:

- Existing legal uses, reasonably anticipated future needs, and existing and reasonably anticipated sources of water and conservation efforts
- Whether existing and reasonably anticipated sources of water and conservation efforts are adequate to supply water for all existing legal uses and reasonably anticipated future needs and to sustain the water resources and related natural systems

The SFWMD *Districtwide Water Supply Assessment* (DWSA) was completed in 1998 (SFWMD, 1998c). It recommends that water supply plans should be prepared for four regions within the SFWMD that are anticipated to have the potential for demands to outstrip available supplies by 2020. The assessment identified demands for the following water use categories:

- Public Water Supply
- Domestic Self-Supplied (and small public supply systems)
- Commercial/Industrial Self-Supplied
- Recreational Self-Supplied
- Thermoelectric Power Generation Self-Supplied
- Agricultural Self-Supplied

Projections for 2020 contained within the DWSA include demand levels associated with average rainfall conditions, as well as demands that would be anticipated

during a drought that could be expected to occur once in every ten years (as required by Section 373.036, F.S.). The water resource and demand analyses presented in the DWSA will be refined every five years as part of each region's water supply planning process. Environmental demands are not quantified in the DWSA. These needs are addressed in the water supply planning process through the incorporation of restoration goals and targets, MFLs, performance measures, reservations of water, and resource protection criteria.

The DWSA provides demands for 1995 and projections for 2020 for each Public Water Supply (PWS) utility in the SFWMD with projected pumpage of 0.5 million gallons per day (MGD) or greater in 2020. Source locations for each of these utilities are also provided. The DWSA also includes descriptions of agricultural, commercial/industrial, and recreational self-supplied uses; surface water and ground water resources; and the availability and limits of water resources in each of the District's four regions.

Regional Water Supply Plans

The District will continue to prepare water supply plans for each of its four planning regions, that cover the entire District. Regional water supply plans provide more detailed, region-specific information than the DWSA. Water supply plans are based upon data that are related to the specific water needs, sources, and environmental features of the regional planning areas, and are updated every five years. Area-specific goals and objectives were developed for the LEC Plan during the water supply planning process.

The preparation of water supply plans for the planning regions has been sequenced based on the history of water shortage problems. The water supply plan for the Lower West Coast Planning Area was the first to be initiated, followed by the LEC, Upper East Coast, and finally the Kissimmee Basin. The District's water supply planning status for the four regions is as follows:

- The *Interim Plan for Lower East Coast Regional Water Supply* was completed in 1998 (SFWMD, 1998b). This plan described various options that were under investigation, provided preliminary recommendations, and laid out the process for completing the regional plan. The analyses in that document were subsequently expanded to produce the present document.
- The *Lower West Coast Water Supply Plan* was completed in 1994 (SFWMD, 1994), and was updated in 1999-2000. This updated plan was approved by the Governing Board in April 2000 (SFWMD, 2000b).
- *The Upper East Coast Water Supply Plan* was completed in 1998 (SFWMD, 1998d), is currently being implemented, and will be updated in 2003.
- The *Kissimmee Basin Water Supply Plan Background Document and Appendices* were completed in 1996 (SFWMD, 1996b), and the water supply plan for this region was developed in 1999-

2000. This plan was approved by the Governing Board in April 2000 (SFWMD, 2000c).

Statutory Requirements for Regional Water Supply Plans

Section 373.0361, F.S., requires that each regional water supply plan be based on at least a 20-year planning period and include water supply and water resource development components, a funding strategy for water resource development projects, MFLs established within the planning region, an MFL recovery and prevention strategy, and technical data and information supporting the plan.

The water supply development component must include the a quantification of the water supply needs for all existing and projected future uses within the planning horizon, with a level-of-certainty planning goal for meeting needs during a 1-in-10 year drought event. It must also include a list of water source options for water supply development, including traditional and alternative sources, from which local government, government owned and privately owned utilities, self-suppliers, and others may choose. For each option, the amount of water available, the estimated cost of the project, and sources of funding must be identified.

The water resource development component must include a list of water resource development projects that support water supply development. For each water resource development project the following must be provided: an estimate of the amount of water to become available through the project; the timetable for implementing or constructing the project; the estimated costs for implementing, operating, and maintaining the project; sources of funding; the entities or agencies who will implement the project; and a description of how the project will be implemented. The funding strategy for water resource development projects must be reasonable and sufficient to pay the cost of constructing or implementing all of the listed projects.

The recovery and prevention strategy must be implemented if the flow or level in a water body is below, or within 20 years is projected to fall below, its established MFLs (Section 373.0421(2), F.S.). The strategy must include the development of additional water supplies and other actions to achieve recovery to the established MFLs or to prevent the existing flow or level from falling below the established minimum flow or level. It must also include a timetable which will allow for the provision of sufficient water supplies for all existing and projected reasonable-beneficial uses.

The plan must also take into consideration how the water supply and water resource development options serve the public interest or save costs overall by preventing the loss of natural resources or avoiding greater future expenditures for water resource development, water supply development, or resource restoration. However, unless adopted by rule, these considerations do not constitute final agency action.

LEC Plan Goals and Objectives

Goal. The following provision from the State Comprehensive Plan (Section 187.201(8a), F.S.) was adopted as the primary goal of the LEC Plan:

> Florida shall assure the availability of an adequate supply of water for all competing uses deemed reasonable and beneficial and shall maintain the functions of natural systems and the overall present level of surface and ground water quality. Florida shall improve and restore the quality of waters not presently meeting water quality standards.

This statewide policy is consistent with the water management policies in Chapter 373, F.S., and the *Water Supply Policy Document* (SFWMD, 1995).

Objectives. The LEC Regional Water Supply Plan Advisory Committee also developed several specific objectives and associated strategies for the plan:

1. Protect and enhance the environment including federal, state, and locally identified natural resource areas
2. Protect and conserve the water resources of South Florida to ensure their availability for future generations
3. Provide for the equitable, orderly, cost-effective, and economical development of water supplies to meet South Florida's environmental, agricultural, urban, and industrial needs
4. Improve resource management through the integration of regional and local water supply plans and land use planning

Statutory Requirements. In addition to the above general goals and objectives, results of model simulations were analyzed to determine the ability of proposed projects and actions to achieve other statutory requirements of water supply plans:

- Provide for 1-in-10 year Level of Certainty without causing harm
- Protect water resources from significant harm
- Restore natural systems
- Reserve water needed to protect fish and wildlife and public health and safety

These objectives and statutory requirements were used in the planning process to develop water supply performance measures, resolve competing use issues, and identify recommendations.

Strategies. The plan identifies 14 general strategies and associated recommendations to achieve these objectives (**Table 3**).

Table 3. Summary of Strategies and Recommended Actions Developed to Meet the Objectives of the LEC Plan.

General Strategy	Objective(s) Addressed	Implementing Recommendation (see Chapter 6)
Implement CERP, Water Resource Development, and Water Supply Development Projects	all	all
Refine regional/subregional models and conduct additional simulations	all	**1**, **2**, **6**, **11**, **19**, **30**, **37**, **40**
Implement a resource monitoring and adaptive management process	all	**1**, **3**, **6**,**17**, **39**
Recognize tribal water rights	3	**8**, **17**
Implement actions described in the *Caloosahatchee Water Management Plan* (CWMP) (SFWMD, 2000d)	all	**13**,**14**, **28**, **29**, **30**, **35**
Resolve permitting issues associated with ASR	3	**15**
Develop and implement a water conservation program	2,3,4	**16**, **17**, **38**, **41**
Implement actions recommended in this plan and the CWMP to improve performance of CERP projects	all	**18**-**30**
Improve management and operations of District and local facilities	all	**26**-**27**, **31**, **32**
Improve water shortage/supply-side management plans and practices	1,2,3	**31**, **32**
Establish reservations of water	1,2	**9**, **34**, **35**, **36**, **37**
Establish MFL criteria and MFL recovery and prevention plans	1,2	**11**, **35**, **36**, **37**, **38**, **39**
Consumptive Use Permitting	2,3	**2**, **8**, **40**

Recommendations to achieve the goal, its associated objectives, and plan requirements through implementation of the listed strategies are discussed in **Chapter 6** of this document.

Regional and Local Components

The design of the LEC Plan provides guidance for local government and other users (e.g., private utilities, agriculture, etc.) to implement water supply development projects. These projects will be financed primarily at local expense to use alternative sources to supplement water supplies available from the regional system and provide greater reliability. In conjunction with the CERP, the LEC Plan also supports water resource development activities that are designed to increase the amounts of water that can be stored in, and delivered from, the regional system. These options provide additional water to meet a broad range of environmental, urban, and agricultural needs and will be financed primarily at public expense.

In addition, the LEC Plan calls for the establishment of boundary conditions that will define the amount of regional system water available within a particular basin or service area. This amount depends on the specific system components in place at any point in time. If recommendations of this plan are implemented within appropriate time frames, sufficient water will be available to meet urban, agricultural and environmental demands through 2020. Although investment in significant public infrastructure will be required to meet the demands of future growth, the costs of developing the needed supplies will be distributed among many users and should not overly burden the regional economy.

The LEC Plan has been constrained to include options and components that can reasonably be expected to be in place by 2020. These include water supply planning activities, projects within the purview of the CERP, and additional structural and operational features. Additional research may be required within the region to identify and meet long-term water supply needs, environmental restoration goals, and appropriate minimum water levels.

RELATIONSHIP TO OTHER PLANS AND PROGRAMS

Comprehensive Everglades Restoration Plan

The Central and Southern Florida Project for Flood Control and Other Purposes (C&SF Project), which was first authorized by Congress in 1948, is a multipurpose project that provides flood control, water supply for municipal, industrial, and agricultural uses, prevention of saltwater intrusion, water supply for Everglades National Park, and protection of fish and wildlife resources. The primary system includes about 1,000 miles each of levees and canals, 150 water control structures, and 16 major pump stations. The C&SF Project was designed in the 1950s to encompass a 50-year planning horizon The design was based on forecasts that significantly underestimated the intensity of land uses and future population growth. Increased population and more intense land use have resulted in higher than anticipated demands on the system's flood protection and water supply capabilities.

In 1994, Congress authorized the U.S. Army Corps of Engineers (USACE) to reevaluate the C&SF Project and make recommendations to improve the project for multiple benefits, including the restoration of the Everglades system. The final report of this effort, the *The Central and Southern Florida Flood Control Project Comprehensive Review Study Final Integrated Feasibility Report and Programmatic Environmental Impact Statement* (Restudy), was submitted to Congress in July 1999. The Restudy was developed by a multiagency, multidisciplinary team which formulated and evaluated alternative comprehensive plans based on computer simulations, field observations, and professional judgement. The purpose of this study was to reexamine and determine the feasibility of modifying the C&SF Project to restore the South Florida ecosystem and to provide for the other water related needs of the region, including flood control, the enhancement of water supplies, and other objectives served by the C&SF Project. Specifically, as required by the authorizing legislation, the study investigated making structural or operational modifications to improve the quality of the environment; improve

protection of the aquifer; improve the integrity, capability, and conservation of urban and agricultural water supplies; and improve other water related purposes. The recommendations made in the Restudy will be refined and implemented in the Comprehensive Everglades Restoration Plan (CERP).

In 1997, the LEC Regional Water Supply Plan Advisory Committee agreed to have major storage concepts developed by the District for the LEC Plan incorporated into the Restudy analysis. As a result, much of the Restudy's recommended course of action is based on concepts that were developed and refined in the LEC water supply planning process. Therefore, the Restudy and the LEC Plan are closely integrated, and key storage components for this plan are eligible for federal funding.

The Restudy includes recommendations for structural and operational changes to the existing C&SF Project that will capture and store much of the water that is now lost to tide, in order to provide enough water in the future for the ecosystem, as well as urban and agricultural users. Water management options developed in the Restudy provide a template and basic infrastructure for Everglades restoration, regional water resource development, and local water supply development efforts. The hydrologic management goals developed in the Restudy were also used as a basis to define the various harm standards that are used in the Consumptive Use Permitting (CUP) process and to develop MFLs.

The components identified in the Restudy will be refined and implemented in the CERP. The CERP will address modifications to improve the performance of the C&SF Project and restore the South Florida ecosystem, while providing for other water related needs of the region. Proposed locations of the major features of this plan are shown in **Figure 4.**

Water Preserve Areas Feasibility Study

As part of the overall CERP effort, multipurpose water management areas are planned in Palm Beach, Broward, and Miami-Dade counties between urban areas and the eastern Everglades. These Water Preserve Areas (WPAs) will have the ability to store and treat urban runoff, reduce seepage, provide flood protection, and improve existing wetland areas. The study area for the WPAs is shown in **Figure 5**.

The Water Preserve Areas Feasibility Study, scheduled for completion in 2001, is investigating methods to capture and store excess surface waters that are normally released to tide via the C&SF Project canal system. This would be accomplished by backpumping a portion of these surface waters to the WPAs. The regional and local benefits associated with the WPAs include the following:

- Prevent overdrainage of the Everglades and reestablish natural hydropatterns within existing natural areas
- Provide for the re-creation of natural storage systems lost due to the impacts of development

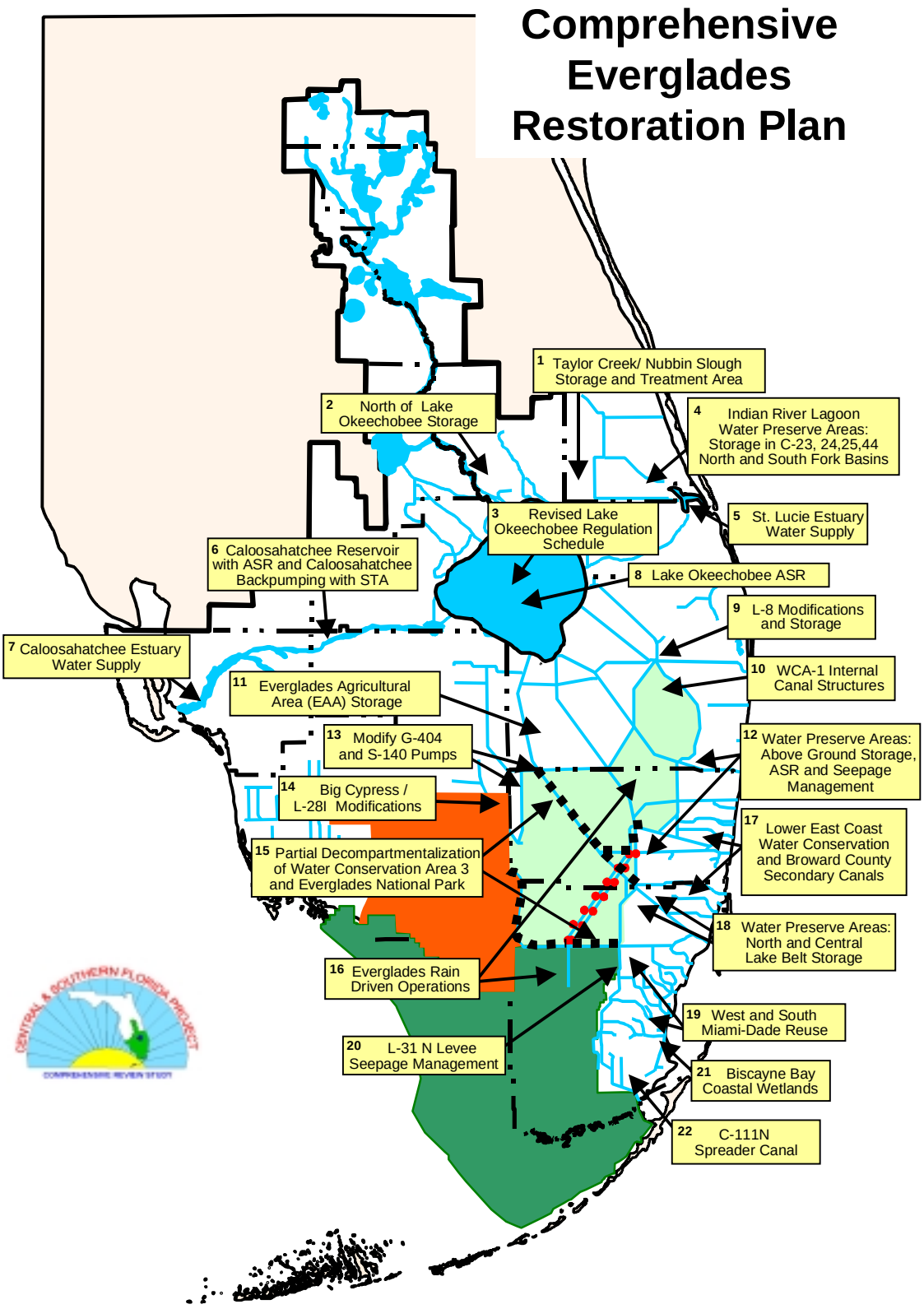

Figure 4. Major Components of the Comprehensive Everglades Restoration Plan.

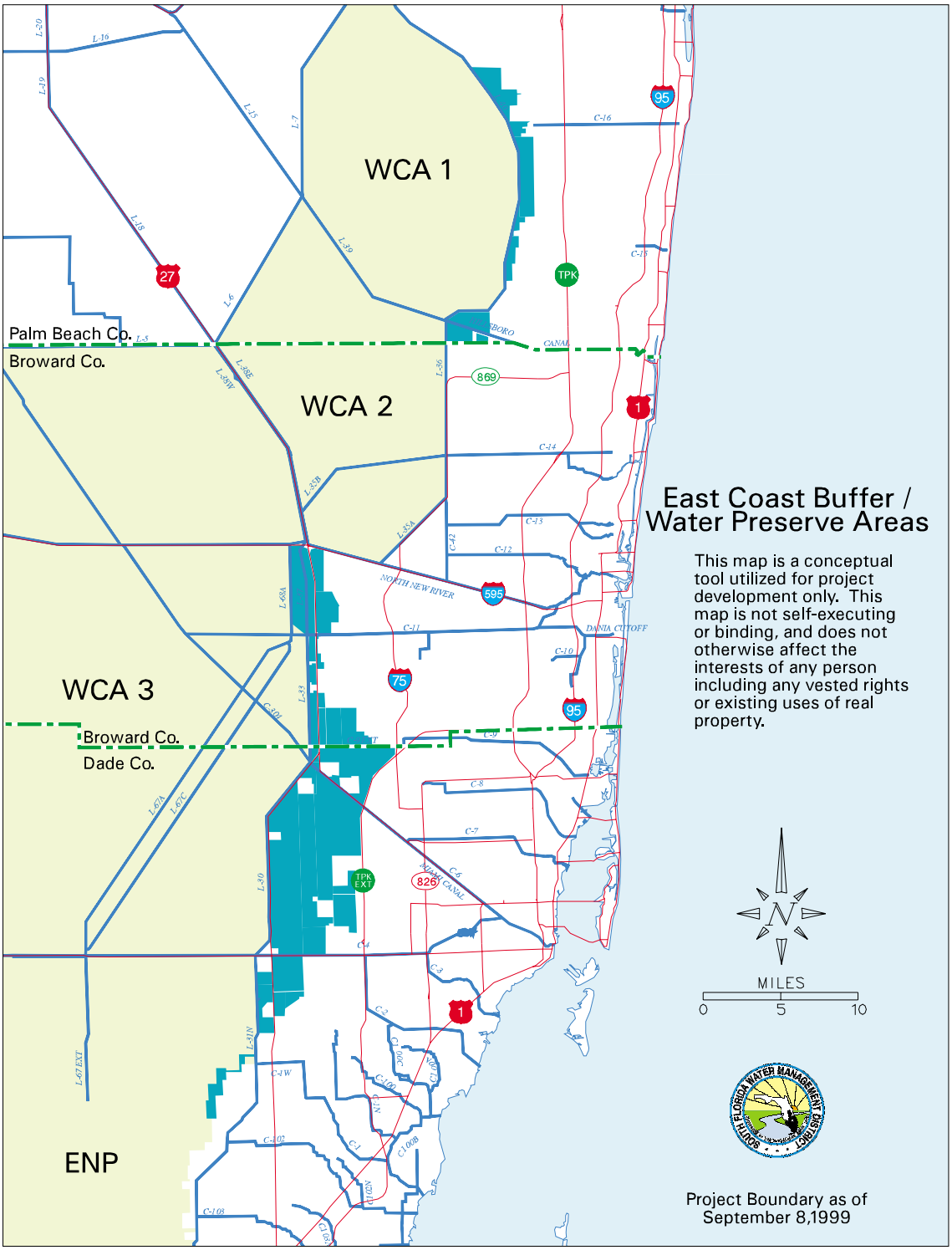

Figure 5. The Study Area for the Water Preserve Area Components.

- Provide for the increased spatial extent of short hydroperiod wetlands
- Provide a buffer between the Everglades and the urbanized LEC planning area
- Provide for an improved water supply to the LEC planning area
- Maintain flood protection to urban and agricultural lands

Integrated Water Resource Plans

Other efforts include the development of more location specific, LEC subregional plans that are derived from the overall LEC regional water supply planning effort. These include the *Northern Palm Beach County Comprehensive Water Management Plan*, the *Southeast Palm Beach County Integrated Water Resource Strategy, the Broward County Integrated Water Resource Plan*, and the *South Miami-Dade County Integrated Water Resource Plan*. While the planning processes are in different stages of development, efforts will be made to complete these works, where appropriate, as quickly as possible. Results of these ongoing subregional efforts were incorporated into the LEC Plan. The District has shifted its emphasis toward implementation of regional water supply plans and the CERP. In cases where local governments decide to continue their own local water supply planning processes, the District will attempt to remain supportive as long as resources are available and there is no conflict with the implementation of the water supply plans or the CERP.

Other Regional Water Supply Plans

Three other water supply plans, the *Upper East Coast Water Supply Plan* (SFWMD, 1998d), the *Lower West Coast Water Supply Plan* (SFWMD, 2000b), and the *Kissimmee Basin Water Supply Plan* (SFWMD, 2000c) are linked to the LEC Plan because Lake Okeechobee serves as a common source of water for all of these areas. For example, the Caloosahatchee Basin, Lee County, and the City of Fort Myers rely on water from Lake Okeechobee as a source of supply during dry periods. In addition, the St. Lucie Canal, in the UEC Planning Area, and the Caloosahatchee River, in the LWC Planning Area are outlets for discharge of excess water from Lake Okeechobee when water levels in the lake exceed its regulation schedule. For this reason, these areas within the other water supply planning regions were analyzed in the LEC planning process.

The *Upper East Coast Water Supply Plan* was the first water supply plan developed under this new statutory direction. The *Lower West Coast Water Supply Plan* was developed at the same time as the LEC Plan and was completed in 2000. The LEC Plan follows the format established by these efforts, with modifications as needed to address specific features and issues that are unique to the LEC Planning Area. As other water management districts develop their water supply planning initiatives, the SFWMD and the FDEP will work with them to develop a compatible statewide approach. Aspects that may be reviewed for compatibility include application of the 1-in-10 year level of certainty goal and development of associated water demands. Any results of such efforts will be reflected in the five-year update to this plan.

Caloosahatchee Water Management Plan

Due to the special problems associated with providing water for irrigation to agricultural interests in the Caloosahatchee River Basin (**Figure 6**) and to public water supply facilities in Lee County, a special management plan was developed for the Caloosahatchee River (SFWMD, 2000d). The Caloosahatchee Planning Area spans two regional water supply planning areas, the Lower West Coast and the Lower East Coast. The *Interim Plan for Lower East Coast Regional Water Supply* (SFWMD, 1998) recommended that a water management plan be developed for the Caloosahatchee River Basin, in recognition of the unique features of this geographic area and its relationship to the regional water management system. This plan was completed in 2000 and addressed the long-term water supply needs from the regional system, and alternative methods to improve management of available water within the watershed. The relevant conclusions and recommendations of the *Caloosahatchee Water Management Plan* (SFWMD, 2000d) have been incorporated directly into **Chapter 6** of the LEC Plan. The remaining portions of the plan are incorporated by reference.

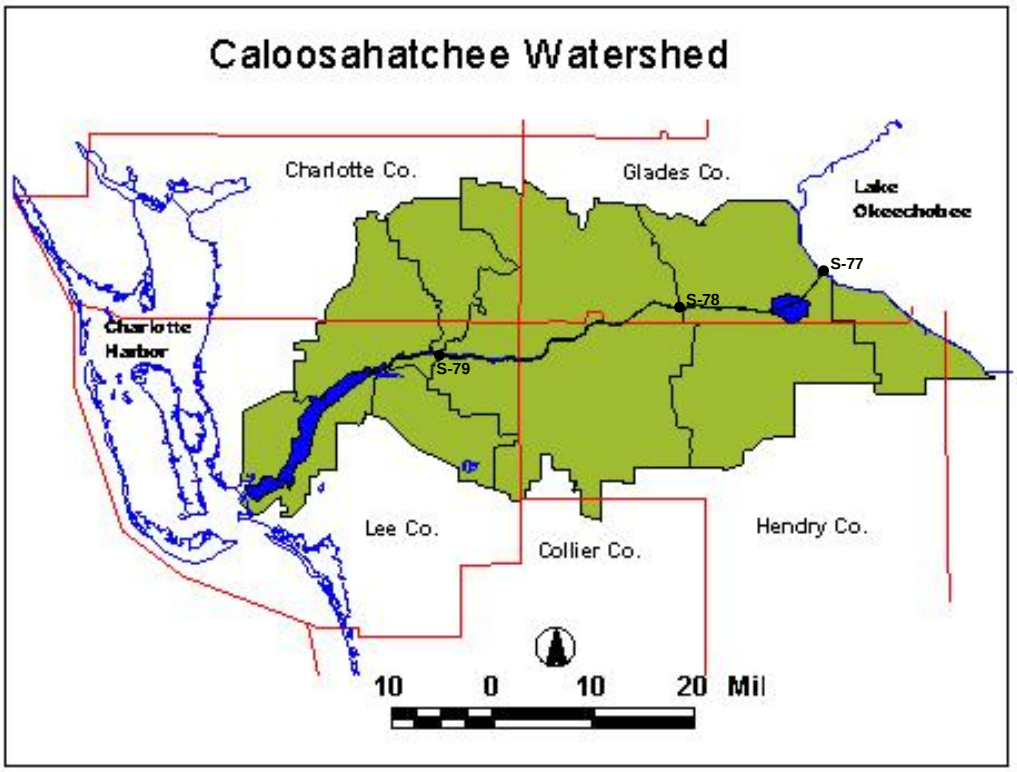

Figure 6. Caloosahatchee Watershed Management Planning Area.

Ecosystem Restoration

In addition to the CERP, restoration is under way in a number of other major South Florida ecosystems and watersheds. Some examples are the Indian River Lagoon/St. Lucie River, Caloosahatchee River, Loxahatchee Slough and River, the Lake Worth Lagoon, Biscayne Bay, Estero Bay, Kissimmee River Basin, Lake Okeechobee, and the Everglades. Everglades restoration projects include improvements to the C-111 Basin, the Everglades Construction Project, Modified Water Deliveries to Everglades National Park, and restoration of Florida Bay. These efforts are designed to avoid further degradation and ultimate loss of the desirable characteristics of these ecosystems and to restore these systems to more closely resemble pre-impact conditions.

Rulemaking and Regulation

The District implements two main permitting programs for water resource allocation and protection: the Consumptive Use Permitting (CUP) Program and the Environmental Resource Permitting (ERP) Program. Both require an evaluation of source impacts, including flood protection, wetland protection, water quality, and water supply. Permits are required to withdraw ground water or modify surface water drainage characteristics and are issued after careful review of the applicant's request. The District also implements a water well construction permitting program.

Consumptive Use Permitting

Chapter 373, F.S., enables and directs the District to regulate the consumptive use of water within its jurisdictional boundaries. Consumptive use is any use of water which reduces the supply from which it is withdrawn or diverted (SFWMD, 1997d). The purpose of the consumptive use regulatory program is to ensure that those water uses permitted by the District are reasonable-beneficial. For consumptive uses to be considered reasonable-beneficial they must be efficient, consistent with the public interest, and not interfere with other presently existing legal uses. Reasonable assurances must be made that proposed water uses meet these requirements on an individual and cumulative basis, as well as meet specific water resource protection criteria.

Water Well Construction Permitting

The District implements a well construction permitting program which reviews the location, construction, repair, and abandonment of water wells, and the licensing of water well contractors. As of January 1999, the District had five well construction delegation agreements with local governments. The District intends to pursue delegation agreements with other local governments.

MEETING PRESENT NEEDS AND THE NEEDS OF FUTURE GENERATIONS

An important part of the planning process has been to identify constraints that are needed to protect water supplies while exploring opportunities to maximize reasonable-beneficial use of the resource. Balancing these two requirements involved extensive public input from the LEC Regional Water Supply Plan Advisory Committee, whose members represent a variety of disciplines and interests, such as local governments, public water supply utilities, environmental interests, agriculture, Native American tribes, and the general public.

Water management in South Florida is multifunctional, reflecting the District's four main areas of responsibility: water supply, flood protection, water quality, and natural systems management. Due to the interrelationships of these areas of responsibility, the water supply plan was coordinated with other planning, restoration and construction efforts in the region. For example, other related studies are addressing freshwater inflows to Biscayne Bay, Everglades National Park, and Florida Bay. The CERP and Everglades Construction Project are addressing needs of the Everglades regional ecosystem. The results of these and other investigations may further enhance regional water supply by increasing surface water availability and improving water quality. This comprehensive, coordinated approach, combined with extensive public input throughout the planning process, ensures that solutions are balanced and consider all aspects of water management.